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ABSTRACT

This self-instructive workbook focuses on ways in which the teacher can gather helpful information regarding activities with students. It is supplemented by a program and a support system that includes instruction, teaching experiences for practice, discussions, and individual conferences. The two major goals of the workbook are to enable teachers to (1) gather, within existing classroom settings, information which is manageable in amount and complexity and can be useful in better understanding their work with students; and (2) organize and articulate their information in a field study report that will have meaning for them or possibly for other interested persons. The teachers are asked at certain points in the workbook to write down their ideas and examine them before proceeding, in order to assess their own development for carrying out educational research. The workbook is divided into the following six sections: (1) evaluation and assessment of students' activities, (2) summary of observational plans, (3) methods for making observational records, (4) defining a field research project, (5) communicating research findings, and (6) self-checks and notes. It also includes suggestions for related reading to aid in writing research reports. (BD)

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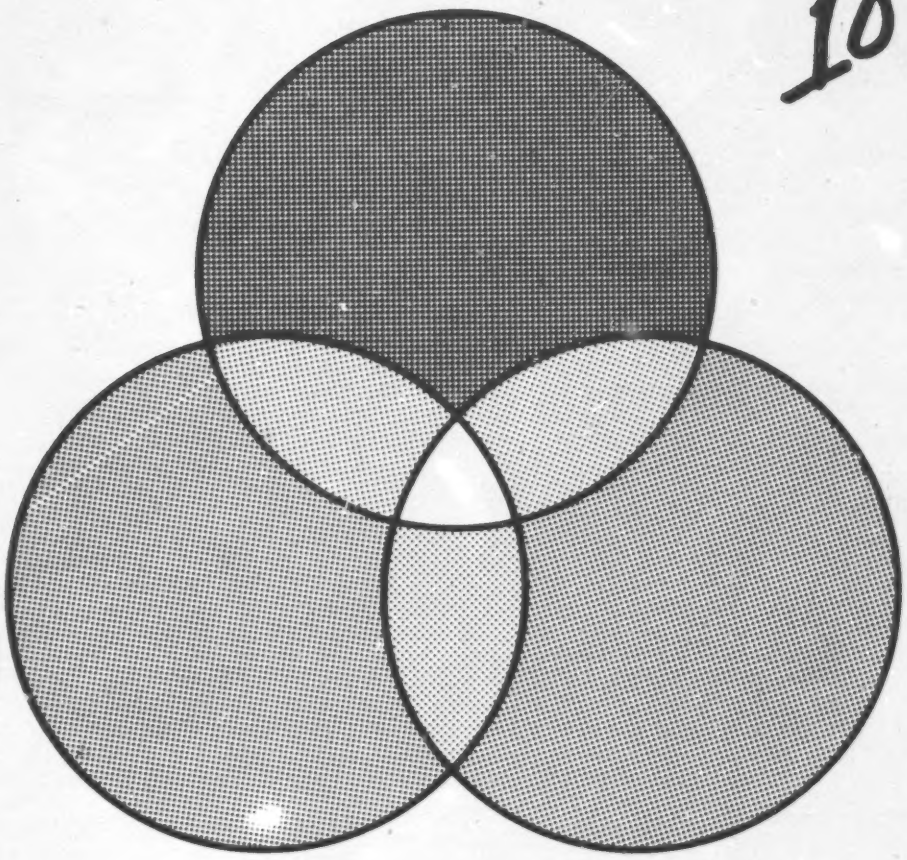

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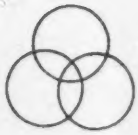

LEARNING ABOUT.....SERIES

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LEARNING ABOUT EDUCATION:
AN INTRODUCTION TO EVALUATION RESEARCH
AND ASSESSMENT TECHNIQUES

A Personal Workshop

by

John David Miller

This workshop focuses upon ways in which you, as a teacher, can gather helpful information regarding your activities with students. Although you will develop and use many ideas and skills, two major goals of this workshop are idenified below.

1. *As a result of this workshop you will be able to gather, within existing classroom settings, information that is manageable in amount and complexity and can be useful to you in better understanding your work with students.*

2. *As a result of this workshop you will be able to organize and articulate your information in writing, in a field study report that will have meaning for you or possibly for other interested persons.*

This workshop is self-instructive. It is supplemented by a program (other book in this series) and a support system that includes instruction, teaching experiences for practice, discussions, and individual conferences.

You will be asked at certain points in this workshop to write down your ideas and examine them before proceeding. Experience indicates that through this active involvement with the text you will be better able to assess your own development for carrying out educational research.

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INTRODUCTION

This workshop on *research* and *assessment* represents an attempt to enable teachers to grasp these two words in broader contexts than those in which they are commonly used. As used throughout this book, the words are intended to convey the notion of gathering information (in any form) that is helpful to the development of productive teaching-learning activities. An underlying assumption is that, as teachers, our effectiveness depends constantly on feedback from our clientele, that is, our students. Feedback seems essential to any instructional enterprise that is to remain fresh and viable in a rapidly evolving society.*

Thus, this workshop is intended to enable teachers to gather information that could have persuasive meaning for them in developing their programs. Its purpose is not so much to provide a way of assigning value judgments (like good or bad) to existing programs. Rather it presents some strategies for gathering information useful in making further program development a rational process.

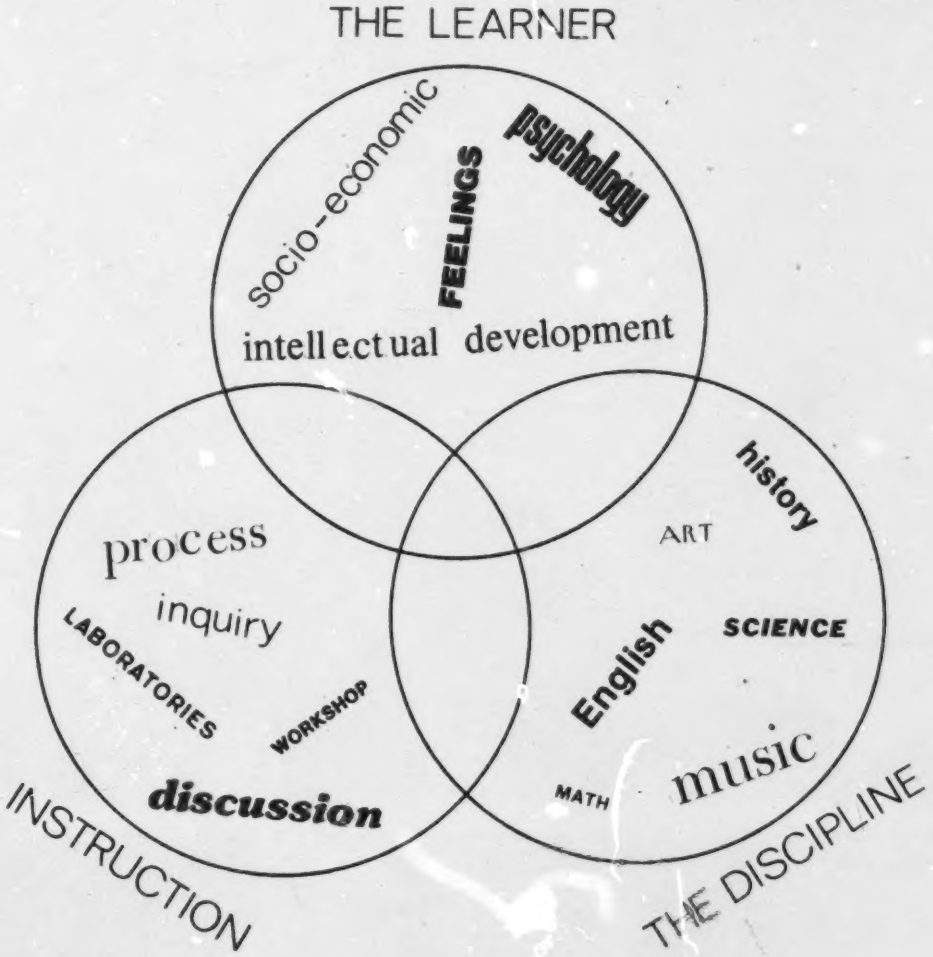
*Consistent with this idea, the author invites your feedback regarding the effectiveness of this workshop. See appendix.

Briefly, the workshop goes something like this: You will be introduced to some issues in educational evaluation and assessment, invited to interact with some of the author's ideas, and then invited to create some of your own.

If you are still interested in learning about gathering productive information of this sort, you are invited to turn the page.

What do I really want to find out about my activities with students and how do I go about finding out?

Teacher-student interactions most often take place in very complex settings, which can be portrayed as collages of elements contained in the logos on which this program is based. The logos is represented below.



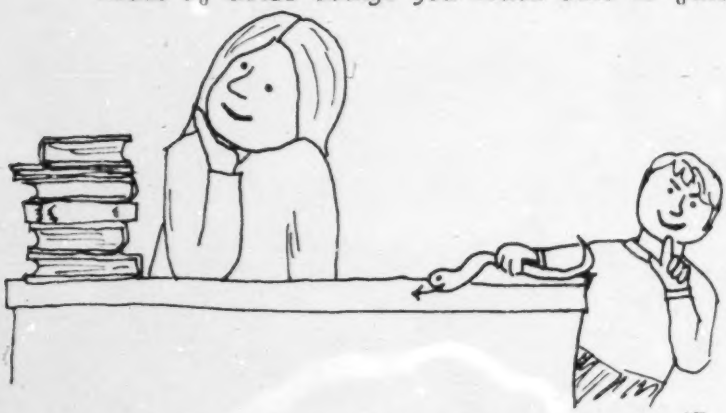
Some of these elements are undoubtedly part of your teaching world. Even though this collage is complex, try writing down in priority three things that you would honestly like to find out about your activities with students. Try to choose one question from each of the three major themes of the program: instruction, the learner, the discipline.

1. _____

2. _____

3. _____

"Think of three things you would like to find out...."



Now please go on.

It is only a guess, but it is likely that one or more of the following statements contain ideas paralleling your own.

1. I would like to know how much
   - math
   - art
   - science
   - reading
   - social studies
   - (other subject)

   { I've taught my students. / my students have learned.

2. I would like to know if this
   - questioning strategy
   - homework
   - laboratory experiment
   - free time
   - textbook
   - lecture
   - movie
   - field trip
   - computer game
   - guest lecturer
   - art workshop
   - composition
   - sequence of experiences
   - physical arrangement
   - intra-class grouping
   - (other activity or strategy)

   is useful for my teaching.

3. I would like to better understand my students'
   - intellectual development.
   - family background.
   - earlier school activities.
   - attitude toward school.
   - adopted sex roles.
   - way of approaching problems.
   - capacity to handle propositional logic.
   - (other information pertaining to my students).

Statements derived chiefly from these three form much of the basis for the discussions contained in this workshop.

Question 1.

I would like to know how much *math / art / science / reading / social studies / (other subject)* *I've taught my students. / my students have learned.*

Interestingly, even though there are many ways of getting at this question, teachers rely on one way predominantly.
We might call this way

TEACH-THE-SUBJECT-THEN-GIVE-A-TEST

or the TTSTGAT strategy.

The word to consider in this question is *much*, its full significance being the teacher's responsibility. Ask yourself, how much of the teaching or learning can I attribute to the *dispersion* of my own personal energy. When carefully examined, this question is not trivial, but neither is it impossible to approach.

But before going further, think of some reasons why the TTSTGAT strategy might be a highly limited procedure for dealing with the question. Try to write three reasons in order of importance to you in the space below.

1. _____

2. _____

3. _____

When you are satisfied that your reasons are clear and contain meaning for you, please turn to the next page.

You may already have guessed that the author of this workshop sees the TTSTGAT as a limited procedure. Teaching the subject and then formally giving a test samples student performance at only one point in time. This method gives little or no information regarding the skills which students may have acquired prior to the teaching activity. Thus, it is very difficult to attribute the student's test performance directly to the teaching activity. That learning took place can only be inferred. The situation is akin to an ancient formula for making mice.

> *Place straw and soiled clothing in a dark corner of the barn and then observe the spot several weeks later.*

Mice usually appeared mysteriously when this formula was followed; but note, a careful search of the barn ahead of time was not part of the plan.

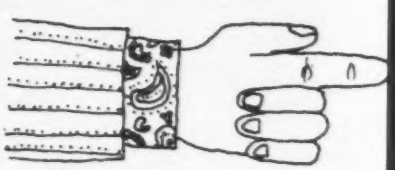
Returning to the limitations of the TTSTGAT, how might we alter the TTSTGAT strategy to collect stronger evidence that we have engaged in a productive teaching-learning activity? Please list your ideas below.

1. _____

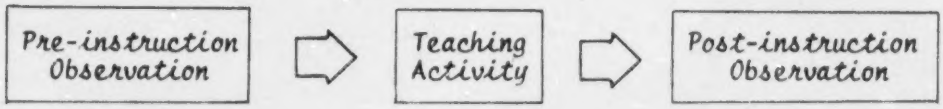
2. _____

3. _____

When you are satisfied that your ideas make sense to you or if you really can't think of any at this point, turn the page.



If you suggested among other things that a test be given prior to the teaching (an early search of the barn for mice, so to speak), this author would agree wholeheartedly that your plan would be strengthened. Student performance would then be assessed at two points in time, like this:



Now the pre- and post-instruction observations can be compared. The word *observation* has been used here rather than the narrower term *test*.

Noting that time always elapses between pre- and post-instructional observations, try listing below two aspects of the TTSTGAT scheme that still limit its effectiveness for gathering useful information.

1. _____

2. _____

When you are satisfied with your efforts or even if you feel stymied, please turn the page.

The author knows at least two ways in which this observation design is limited.

1. Little information is gathered regarding events, other than the teaching activity, that are happening to students between the pre- and post-instruction observations. Yet human beings continually receive and process information outside the classroom, by television, to cite one obvious example. Thus, people are constantly learning apart from the formal teaching activities provided to them. This fact makes it difficult under the revised design to attribute differences in pre- and post- instruction observations to the formal teaching. Consider, for example, teaching reading for a year to a group of students who are regular Sesame Street buffs (or to viewers of another educational television program) and then trying to assess the effectiveness of the school program. Under this plan, we couldn't be very confident that our work alone helped them to read.

2. The usefulness of information gathered from this design can also be limited by the students' natural maturation. A student's intellectual development might change recognizably for any number of reasons, including physiological development. That is, between the pre- and post- instruction observations, processes functioning with time, such as growing older, hungrier, or more tired, can and do occur along with the teaching activity. It is therefore, difficult to attribute differences in pre- and post- instruction observations to the teaching activity itself. Maturation can be an especially big factor with younger children, as the books on classification and conservation abilities in this series indicate.

Try to devise some strategies for modifying or adding to the existing observational scheme to circumvent the two limitations described on the preceding page. Don't forget your own ideas of the page before that.

Then continue to the next page.

The current plan can be strengthened considerably by observing a group of students who do not participate in the teaching activity, we might set up the following plan:

Group I

Pre-instruction Observation	*Teaching Activity*	*Post-instruction Observation*

Group II

Pre-instruction Observation (Given at same time to Groups I and II.)	*No Teaching Activity or A Different Activity*	*Post-instruction Observation (Given at same time to Groups I and II.)*

Using this plan, you would be able to compare the performance of the group of students who received the instruction to a group that did not. If the performances seen during the post-instruction observations are substantially different (or even the same) you will be better able to assess just how productive the teaching activity was. With this revised plan, you are able to make comparisons not only before and after your teaching, but also with another group, often called a control group, that did not receive instruction.

A WORD OF CAUTION, however.

A strong case must be made that Groups I and II are comparable in several ways (e.g. grade level, sex, socio-economic status, I.Q.) before you carry out the observations and teaching activities in this plan. Otherwise, you may be working with two groups that are likely to react differently to the teaching activity.

An example follows on the next page.

EXAMPLE

We might wish to provide an experience of classifying plants in the out-of-doors to our seventh-grade class. The only comparison group available is an eighth-grade class in another school. On the pre-instruction observation both groups appear to demonstrate about the same classification skills. Yet there are a number of reasons why the two groups may not be equivalent in terms of their potential receptiveness to our instruction.

Try to think of some of these reasons and write them below.

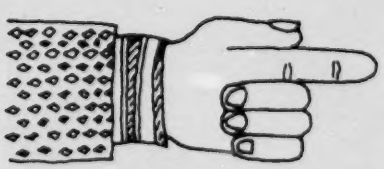
1. _____

2. _____

3. _____

_____

Again, when you are satisfied that your ideas hold meaning for you, please go on.



A NUMBER OF FACTORS may make these groups nonequivalent in how our teaching activity affects them.

REMEMBER, THIS IS A CRUCIAL POINT IN SELECTING THE CONTROL OR COMPARISON GROUP. HAS IT BEEN DETERMINED TO THE BEST OF OUR RESOURCES THAT THE GROUPS ARE EQUIVALENT WITH RESPECT TO THE POTENTIAL EFFECT OF OUR TEACHING ACTIVITY?

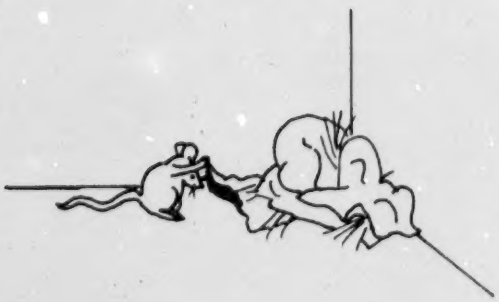
Here are some possible factors that might limit the equivalence of the seventh- and eighth-grade groups in the example.

1. Readiness to learn advanced classification skills goes with intellectual development, at least according to Piaget. (See Learning About Learning: Classification Abilities, in this series.) Thus, the seventh- and eighth-grade groups may differ in how they deal intellectually with the teaching activity.
2. One of the groups may be more accustomed to field trips in the out-of-doors than the other group; the instructional setting and not just the activity per se could affect the post-instruction observation.
3. The distribution of sexes might differ widely between the two groups and affect the rate of learning.
4. Attitude toward an out-of-doors activity may vary widely, especially if one group attends an urban and the other a suburban school.
5. The attitudes of the teachers of the two classes toward the activity may be quite different, affecting the climate of learning in which the activity is approached.

(Please continue)

IN PRACTICE, it is impossible to establish the exact equivalence of the control group and the group that participates in the teaching activity. However, the better the case made for equivalence, the better the chances the observational data will be useful to you or other interested persons.

This is probably a good place to go over some of these ideas with the UCCTPP staff. On the next page is a summary, in schematic form, of the observation plans discussed so far.



SUMMARY OF OBSERVATIONAL PLANS

Comments

1. Teaching Activity → Observation

Highly limited. Samples student behavior only once. No comparison group.

2. Pre-instruction Observation → Teaching Activity → Post-instruction Observation

Stronger plan than 1. Still lacks comparison group. Good for looking at internal changes, but cannot generalize.

3. *Groups equivalent with respect to potential effect of teaching activity:*

Group I: Pre-instruction Observation → Activity → Post-instruction Observation

Group II: Pre-instruction Observation → No Activity → Post-instruction Observation

Recommended plan when possible.

When you are clear on all this please continue.

UP TO THIS POINT we have used the terms *pre- and post-instruction observations* to describe our efforts at data gathering and record keeping before and after our teaching activity. Try now to list as many ways as you can to obtain observational records of student activities.

1. _____

2. _____

3. _____

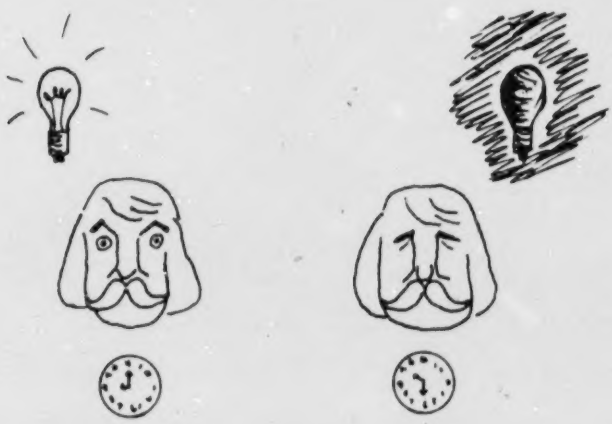
4. _____

5. _____

6. _____

_____

When your continued hard thinking is not producing any further ideas for this list . . .



. . . you are invited to turn the page and compare your list with one constructed by this author.

HERE IS A LIST OF SOME POSSIBLE METHODS FOR MAKING OBSERVATIONAL RECORDS

Video Tapes *Audio Tapes* *Written Tests*

Questionnaires *Self-Reports* *Diaries*

Class Work *Essays* *Log Cards*

Interviews *Photographs* *Q-Sorting*

Inobtrusive measures *Projective Tests* *Computer Print-outs*

Transactional Records *Achievement Tests*

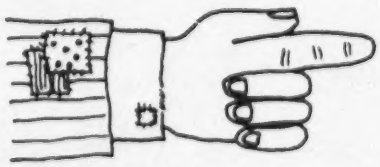
Counseling Data *Parent Reports*

Each of these methods has its own special set of advantages and disadvantages. THERE IS NO GENERAL RULE TO FOLLOW IN USING ANY SINGLE METHOD. IN GENERAL, IT IS BEST TO USE SEVERAL METHODS IN A GIVEN OBSERVATIONAL PROCEDURE SO THAT THEY MAY BE USED AS A CHECK AGAINST EACH OTHER. For instance, in the example of classifying plants in the out-of-doors presented on page 13, a simple questionnaire given to each class could shed light on all but one of the limiting factors discussed on page 14.

(Which factor might not be very readily investigated by a questionnaire? See the factor the author has identified, at the bottom of the next page.)

The staff will be very happy to assist in deciding what kinds of observations might have the greatest potential for gathering productive information for you.

When you are ready, go on to the next page.



How can I clearly define my research project?

Please read the following teacher's statement of a proposed educational research project.

> *"I want to find out whether, after my instruction, my students have grown in their appreciation of English literature* (or any other subject)."

If you were this teacher, how would you proceed? Write down some of your ideas before studying the author's reactions, given on the next page.

Prior experience with field trips, distribution of sexes, and attitudes could be assessed through questionnaires. Classification skills (factor one) are best assessed through activities.

What this teacher has expressed is fine as a starting point. However, in this statement we do not have a very tangible objective for research, which makes it difficult to proceed. You may have already identified the difficulty of devising an observational method for documenting an abstract notion such as *appreciation*. One suggestion is to try to formulate precisely what appreciation of English, music, art, science, math, or any other subject might mean in terms of student behavior. For example, appreciation might be measured by observing (through any appropriate method listed on page 18) what things students choose to work on when their time is their own. If this suggestion is followed, you will NOTE THAT THE RESEARCH QUESTION HAS CHANGED IN A SIGNIFICANT WAY. At first, the question was something like this:

> *After my instruction, have my students grown in their appreciation of . . . ?*

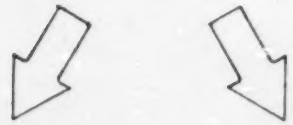
Then it becomes more like this:

> *After my instruction, will my students voluntarily spend more time doing . . . ?*

Though the first question may better express the original idea of this teacher, it remains vague in terms of actual student behavior and is not easily researchable. The second question is researchable because one can observe the degree of voluntary behavior. But in this case, one must accept the idea that voluntary behavior is somehow an expression of appreciation.

In the second question, an OPERATIONAL DEFINITION of *appreciation* has been written. OPERATIONAL DEFINITIONS ARE DIFFERENT from the definitions found in dictionaries, which are called FORMAL DEFINITIONS. *To learn more about the distinctions between the two, try the exercise on the next two pages.*

compare



Operational definitions are constructed around a comparison (an operation) and, though narrowly applied to the situation at hand, they can be extremely useful in their lack of ambiguity; indeed, they are intentionally limiting.

Example 1.

Yellow is the color of this table.

The table may look more like what many people call orange but, if we accept the definition, we are obligated to live with it and carry out tests for the color *yellow* by comparing items in question to the table.

Example 2.

Oily means the way my hands feel just after I lubricate my car.

Formal definitions are like those found in the dictionary and make use of analogies, similies, metaphors, and so on. Formal definitions can depend upon circular arguments and ambiguities, leading to no useful frame of reference.

Example 1.

Oily means full of or containing oil.

Here the word *oil* is used in a circular fashion in the definition.

Example 2.

Yellow means having a yellowish color.

Study the set of statements on the next page and try to divide them into two groups: one containing operational and the other formal definitions.

1. I.Q. is the score obtained by a Stanford-Binet test.
2. Lenity is the quality or state of being mild or gentle, as towards others.
3. Yellow is the color of this table.
4. Teaching is the act or profession of one who teaches.
5. A large number means more than the size of the population of Berkeley.
6. Meaningful learning is when children can recall the names of all the U.S. capitols.
7. According to Piaget, cognitive growth means passing through intellectual development
8. A scientist is an expert in science, especially one of the physical or natural sciences.
9. In my opinion that is few.
10. Scoff is an expression of mockery, derision, doubt, or scorn.
11. Retaw is a substance having the chemical formula H_2O_{13}.
12. Oily means full of or containing oil.
13. Reading achievement means the differential of scores obtained on the Cramer test.
14. A valuing question is one like, "How do you feel about that?"
15. Paying attention means directing vision towards the teacher.
16. Newcomer means a person who has recently arrived.

When you are happy with your two groups, compare them with those constructed by the author on the next page. Discuss discrepancies, if any, with the staff.

More like operational definitions

1, 3, 5, 6, 7, 9, 11, 13, 14, 15

More like formal definitions

2, 4, 8, 10, 12, 16

For practice, take the three statements on page 6 and use operational definitions to change them into questions that would be easier to use for research purposes. Write them here.

1. _____

2. _____

3. _____

When you feel comfortable that you could work with any of these questions in a research study, please turn the page and compare your ideas with those of the author.

STATEMENT I

I would like to know how much math (or any other subject)

{I've taught my students.
{my students have learned.

OPERATIONAL FORM FOR STATEMENT I

What will be the differences in scores on a 50-item arithmetic test administered before and after my instruction?

ALTERNATIVE: *How does student daily work in math compare throughout the year when sampled periodically for evidence of growth in problem-solving ability?*

STATEMENT II

I would like to know if homework (or any other instructional plan) is useful for my teaching.

OPERATIONAL FORM FOR STATEMENT II

How does the quality of work done by my students in class during periods when homework is also being assigned compare with the quality of work completed when there is no homework requirement?

ALTERNATIVE: *How much time do my students spend actually working during periods when homework is assigned, compared with those periods when it is not assigned?*

STATEMENT III

I would like to better understand my students' intellectual development (or some other dimension pertaining to the learner)

OPERATIONAL FORM FOR STATEMENT III

How do my students perform on the Piagetian tasks described in the Learning about Learning booklets of this personal workshop series?

ALTERNATIVE: *How do tasks and activities occurring every day in my classroom* indicate my students' intellectual development?

IN SUMMARY, STATEMENTS THAT ARE OPERATIONALLY DEFINED GIVE A CLEARER INDICATION OF HOW TO PROCEED WITH THE RESEARCH OR ASSESSMENT THAN DO STATEMENTS THAT ARE NOT OPERATIONALLY DEFINED.

To examine another issue in research and assessment, please turn the page.

How can I define my study so that it is manageable in amount of information gathered and its complexity?

As already noted, the logos on page 4 is complex. It is obviously impossible to research everything at once, thus the need for specifying the limits of the study.

Examine the following hypothetical assessment proposal:

I want to find out how children develop reading skills.

List below ways in which you think this study as now described could be further defined in order to make it more manageable.

_____

_____

_____

_____

_____

_____

_____

If you are satisfied with this list, or even if you think the study should be left as stated, please go on to the next page.

One useful procedure for limiting a study is to list as many of its characteristics as possible with a view toward elimination and simplification.

The example on the last page was:

I want to find out how children develop reading skills.

Here are some possibilities for narrowing the study:

1. Instead of speaking of "children" in the general sense, select a particular age range, sex, socioeconomic background, ethnic grouping, school population, region, etc.

2. Instead of all reading skills, choose a specific set, such as phonics, word association, chaining, etc.

3. Determine a time period for the study, rather than allowing it to go on indefinitely as implied in the above statement.

4. Another possibility that you might think of at this point is:.....

This is probably a good place to stop and discuss these ideas with the staff ..

What kinds of field studies have the greatest potential for producing useful results?

Take a minute to look again at the themes represented in the logos on page 4. In case you have not already recognized the correspondence, the three questions listed at the beginning of this workshop on page 6, match the themes of the learner, the discipline, and instruction.

These themes enter into the context of all teacher-student interactions. The association of themes in an active classroom is usually complex, but this very complexity offers every teacher a laboratory that is rich in potential for productive field research.

At the same time, this complexity poses some hazards to obtaining useful information. There is SO MUCH to study that the PURPOSE and PLAN of the study becomes paramount; it is crucial for you to articulate the purpose and plan beforehand in order to avoid utter confusion.

<u>It is the author's experience that the kinds of studies which most affect a teacher's personal development are those initiated by the teacher himself, dealing with his or her own special interests.</u>

Think about the PURPOSE of the study first. Consider again the question(s) which you presumably listed on page 5.

Now try listing on the next page your reason for wanting some answers to those questions.

My reasons for wanting answers to my questions on page 5.

Now consider very honestly whether your statements above actually reflect your personal interests. If they do, your study has a very good chance of producing meaningful information for you. As a result of this interest you will probably have the perseverance to see the study through.

Again when you are satisfied with your statements continue to the next page.....

How can I most clearly communicate my research information in written form?

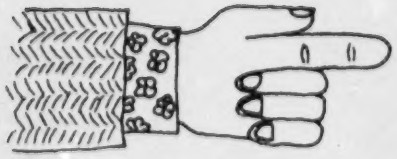
Study the following statement written by a new graduate student in education. (1) List some dimensions of the statement that limit its effectiveness as a report of field observations made by student while working at Pine Hill School. (2) Then try to rewrite it to strengthen its meaning as a research report.

"Herbert Kohl expressed the Pine Hill environment in his book. There were no opportunities for the children to interact with their environment. I felt constantly in conflict with the parents, who had highly traditional expectations. Yet the children liked me because I understood how they learned."

1. _____

2. _____

When you are finished, compare your observations to the author's, listed on the following page.



One limiting factor of the report is the number of words for which no OPERATIONAL DEFINITION is given. See previous discussion on pages 18 - 24. For example:

"interact with their environment"

"conflict"

"highly traditional expectations"

"understood how they learned"

Most teachers have ideas concerning these notions, but the ideas can vary widely. By giving words an operational significance, the educational researcher can communicate more precisely, and his report will have clearer meaning for him or other interested persons.

The following is one possibility for strengthening the report. Compare it with the original, then discuss it with the staff and complete the exercise on the following page.

"Herbert Kohl described the Pine Hill School environment in his book, Thirty-six Children (pages 34 - 35). I did not observe any opportunities for the children to spend time with manipulative curriculum materials, such as those developed at the Lawrence Hall of Science. The parents' goals for their children were different from mine. For example, in mathematics, the parents wanted a written homework assignment from me every evening, whereas I wanted the students to specify more of their own learning objectives. I had studied the intellectual stages of development of most of the students, using Piagetian protocols. I used this information in planning instructional activities with the students, and in my opinion they liked me more as a teacher for doing so."

 Continue to the next page.

How are the following notions operationally defined in the revised report? List your ideas below.

"interact with their environment" _____

"conflict" _____

"highly traditional expectations" _____

"understood how they learned" _____

THOUGH THE REWRITTEN PARAGRAPH IS LONGER, IT IS ALSO MORE PRECISE. PERHAPS YOU CAN THINK OF WAYS TO STRENGTHEN IT FURTHER. LIKE ANY SKILL, PRECISE WRITING TAKES PRACTICE AND CONSTANT FEEDBACK. READING SOME GOOD RESEARCH REPORTING CAN ALSO BE VERY HELPFUL. We suggest that you do both. Get together with the staff and plan to do some writing on which you can get some feedback. Also ask the staff for references to field studies or other research reporting that you can study. If you would like to review basic rules of writing, you might enjoy reading The Elements of Style by William, Jr. and E. B. White (second edition), The Macmillan Company, 1972.

YOU MAY WANT TO USE THE CHECKLIST ON THE FOLLOWING PAGE WHEN EXAMINING CLARITY OF STYLE IN EITHER YOUR OWN OR OTHERS" WRITING.

SOME SELF-CHECKS FOR CLARITY OF STYLE

1. Have I used simple, concrete language; have I avoided jargon?

2. Whenever possible, have I used the active voice (e.g. *Students filled out the questionnaires*) rather than the passive voice (e.g. *The questionnaires were filled out by students*)?

3. Do my relative pronouns (e.g. *it, they, her, him, them* and so on) and subordinate clauses (introduced by *who, which, that, what* and so on) have clear and unambiguous references? (See example at bottom of page.)

4. Does each paragraph contain one coherent set of ideas?

5. Is the sequence of the paragraphs logical?

6. Is there a sense of operational definition to my ideas?

7. Have I used specific examples in my report?

8. What are facts and what are inferences in my writing?

9. Are any statements open to multiple interpretations?

10. Does my writing portray an accurate picture of what I am trying to report?

"I had hoped that my students could do their learning experiments with the hamsters now, but they were asleep." (See 3, above.)

How can I organize the writeup of my assessment research?

THE FOLLOWING IS ONE POSSIBLE OUTLINE FOR ORGANIZING THE FIELD STUDY RESEARCH REPORT. If formal reporting is desired.

A. Preliminaries

1. Title Page
2. Preface
3. Table of Contents
4. List of Illustrations
5. List of Tables or Data

B. Text

1. Background to the Study
2. Delineation of the Study
3. Formative Evaluation (if any)
4. Procedures of the Study
5. Findings
6. Concluding Discussion

C. The Reference Matter

1. Appendix
2. Bibliography

On the next page, you will find additional information about each of these elements of the report. (You may not want to study the details of all of the elements, but all are included for completeness.) Study those elements that you feel are useful to you.

A. Preliminaries

1. Title Page

The title page contains the title of the study, the date, and the name of the author.

2. Preface

The preface contains information about and acknowledgement of any special circumstances or resources of the study.

3. Table of Contents

The table of contents lists the title and beginning page number of each section of the book, including lists of tables or illustrations, chapters, subdivisions of chapters (if any), appendices, and bibliography.

4. List of Illustrations

This list shows the titles and page numbers of illustrations, including maps and graphs.

5. List of Tables or Data

This list gives the titles and page numbers of tables or other displays of data.

B. Text

1. Background to the Study

This section increases the meaning and usefulness of your research by placing it in a context. In stating the facts and situations that led up to your study, you are providing a rational for your particular research. With a strong rationale, the study will be significant no matter the outcome. Though a researcher may carry out a study without constructing a case for its significance, he or she is gambling that the outcome will be meaningful on its own terms. If the results are not interesting, the reader questions *"Why did you investigate that in the first place?"* This author suggests that it is not necessary to gamble, since any of the statements on page 5 which opened this workshop, can lead to studies for which a strong rationale may be constructed. To summarize this is the section in which to review the literature leading up to the study.

B. Text (*continued*)

2. Delineation of the Study

This is an important section of the research report, in which you define and state your responsibilities as a researcher. Here you tell how you limited the study so that it was manageable and had a foreseeable time limit (See pages 26 - 31).

3. Formative Evaluation

The formative evaluation describes all of the changes in original research procedure and the reasons behind these changes (for example, you might include the results of pilot studies and how these results led you to change your procedure). In order to be able to write this section, the researcher must. from the very beginning, keep good records of the evolving research project.

4. Procedures of the Study

This is where the researcher reports in specific detail how the study or research was carried out. (Cross-reference can be made to modifications made during the formative evaluation and described in 3, above.)

5. Findings

The facts uncovered by the study are reported in this section. Only information supported by direct evidence is included here. Inferential statements or subjective statements by the author do not belong here, but in the concluding section.

6. Concluding Discussion

This section discusses the implications of the study for curriculum reform, increased understanding of the learner, modification of instruction, further research on any of these or other issues in education. A few subjective statements by the researcher are a possibility here, but only if they are clearly identified as such.

C. The Reference Matter

1. Appendix

The appendix contains indirect but useful information for helping the reader understand the study. It is an appropriate place for samples of curriculum materials you may have developed, examples of student work, tests, questionnaires, self-reports, or even for samples of many of the observational records listed on page 18. *Often some of this information is best placed directly in one of the text items. Discuss possibilities with the staff.*

C. The Reference Matter

2. Bibliography

The bibliography contains references to all research and background reading that you did while organizing the study and carrying it out. For one recommended style of bibliographical citations, see A Manual for Writers of Term Papers, Theses, and Dissertations by Kate L. Turabian, mentioned under "References."

On the following page, in conclusion of this workshop, you will find a list of self-checks which are intended to be useful to you in formulating a successful study.

SOME SELF-CHECKS AND NOTES

FOR COMPLETING A PRODUCTIVE ASSESSMENT PROJECT

The following items are intended to be useful (with the assistance of the staff) during the development and evaluation of your field.

____ 1. Have you identified a field study problem in researchable (operational) form and described it unambiguously in writing?

____ 2. Does the study have a foreseeable time period with definite limits, and does it have a manageable sequence of operation? What are these?

____ 3. Have you considered several possibilities for gathering information? Explain your reasons for accepting the methods that you have decided to use.

____ 4. Have you identified, in advance of the study, potential results that would contain meaning for you or possibly someone else? What are these?

____ 5. Did your study go exactly as planned? Tell about this. Did you modify your plan (so-called formative evaluation)? If so, in what way(s)?

____ 6. Did your study reveal information that changed or confirmed your attitude or approaches toward teaching? If so, in what ways? Identify these with some degree of precision.

____ 7. Does the writeup of your study meet university graduate standards for organization, clarity of style, grammar, and succinctness? Have you presented an unambiguous account of what you have accomplished?

____ 8. Did your results confirm present practices or lead to any operational changes (no matter how modest) within your school or other schools in the district? What are these? Do these results have the potential for confirming practices or influencing instructional changes elsewhere? Explain.

____ 9. Do you believe that your results are indeed related in some fashion to what you tried? Explain your reasons for your thinking on this.

____10. A self-check of my own, important to me: _____

_____

_____

____ 11. _____

_____

REFERENCES

Further Related Reading:

Campbell, Donald T. and Stanley, Julian C., Experimental and Quasi-Experimental Designs for Research; Chicago: Rand McNally & Co. (1966). A scholarly technical presentation for research designs with discussion and tables identifying their strengths and weaknesses.

Webb, Eugene J. and Campbell, Donald T., Schwartz, Richard D., and Sechrest, Lee, Unobtrusive Measures, Nonreactive Research in the Social Sciences; Chicago: Rand McNally & Co. (1966). Informative and entertaining reading concerning strategies for gathering data without perturbing the phenomena under study.

Wiess, Carol H., Evaluation Research, Methods for Assessing Program Effectiveness; Englewood Cliffs, New Jersey: Prentice-Hall, Inc. (1972). A readable and concise survey of evaluation methods, and their purposes.

More Help in Research Reporting:

Chicago, University Press, A Manual of Style for Authors, Editors and Copyrighters, Twelfth Edition; Chicago (1969). A reference book for editors, professional writers, typesetters, which you can consult with technical questions about format, style, fine points of grammar. There is a good section on composing tables.

Gowers, Sir Ernest, The Complete Plain Words; Baltimore: Penguin Books. An entertaining book which gives guidelines on avoiding the superfluous word, choosing the familiar precise word, and generally improving one's writing style.

Strunk, William, Jr. and White E. B., The Elements of Style, Second Edition; New York: The MacMillan Company (1972). Offers simple guidelines of composition, including a chapter on style. Can be read through quickly for the basics of word usage, sentence and paragraph formation, and other helpful hints.

Turabian, Kate L., A Manual for Writers of Term Papers, Theses, and Dissertations, Third Edition, Revised; Chicago and London: University of Chicago Press (1967). A reference manual which provides assistance for the composing of bibliographies, footnotes, tables. Includes sections on format for texts, public documents, scientific papers.

APPENDIX

Learning about educational research and assessment -
EVALUATION FEEDBACK TO THE AUTHOR.

You are invited to record your reactions to this booklet below, and remove the sheet and mail it to:

The University of California
Cooperative teacher Preparation Project (UCCTPP)
Lawrence Hall of Science
Berkeley, California, 94720

Upon receipt of your evaluation, your name will be placed on our mailing list, if you wish, to receive the project newsletter and announcements of other publications.

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1. What things were you able to do after interacting with this booklet that you could not do beforehand?

2. Which sections (please list by page number and paragraph) were unclear for you?

3. Which sections were the most useful? (please list page number and paragraph)

4. What topics would you like to see expanded upon or added to the booklet?

5. What topics would you like to see deleted?

Comments:

Thank you for your response.

The UCCTPP Staff